REMARKS

In the application, the paragraph bridging pages 36 and 37 has been amended to correct a minor typographical error. *Also*, the United States Provisional Patent Application mentioned on page 37 has been up-dated.

Pages 51 and 52 are included herewith as the application, as filed, contained editing marks thereon. The text therein is correct; however, the editing marks independently appeared due to a printing error.

Respectfully submitted,

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United States Patent No. 6,001,421 of *Ahonen et al.*
United States Patent No. 6,119,362 of *Sundqvist et al.*
United States Patent Application No. 09/733,172, entitled Wet Crepe, Impingement-Air Dry Process for Making Absorbent Sheet, now United States Patent No. 6,432,267.

A throughdrying unit as is well known in the art and described in United States Patent No. 3,432,936 to *Cole et al.*, the disclosure of which is incorporated herein by reference as is United States Patent No. 5,851,353 which discloses a can-drying system.

There is shown in **Figure 20** a preferred papermachine **10** for use in connection with the present invention. Papermachine **10** is a three fabric loop machine having a forming section **12** generally referred to in the art as a crescent former. Forming section **12** includes a forming wire **22** supported by a plurality of rolls such as rolls **32**, **35**. The forming section also includes a forming roll **38** which supports paper making felt **48** such that web **44** is formed directly on felt **48**. Felt run **14** extends to a shoe press section **16** wherein the moist web is deposited on a backing roll **60** as described above. Thereafter web **44** is creped onto fabric **18** in fabric crepe nip **76** before being deposited on Yankee dryer **20** in another press nip **82**. The system includes a vacuum turning roll **54**, in some embodiments; however, the three loop system may be configured in a variety of ways wherein a turning roll is not necessary. This feature is particularly important in connection with the rebuild of a papermachine inasmuch as the expense of relocating associated equipment i.e. pulping or fiber processing equipment and/or the large and expensive drying equipment such as the Yankee dryer or plurality of can dryers would make a rebuild prohibitively expensive unless the improvements could be configured to be compatible with the existing facility. In this connection, various improvements and modifications to the machine **10** of **Figure 20** may be made as described in connection with **Figures 21**, **22** and **Figure 23**.

Figure 21 is a partial schematic of forming section **12** of papermachine **10** of **Figure 20**. Forming roll **38** is a vacuum roll wherein vacuum application is indicated schematically at **39**. Heavy weight sheets on a crescent former usually mean that the felt carries excessive water. In a shoe press operation, this extra water increases the possibility of crushing in the press nip. Most often the extra water is removed using a suction roll with a relatively high degree of felt wrap prior to a shoe press nip. This roll takes relatively large amounts of vacuum to reduce the felt water to the point the nip won't crush out. The use of a vacuum forming roll will eliminate the need for further vacuum application to the felt as the web advances through the equipment. In this way, the vacuum applied can be more efficiently used to reduce water in the felt. The increased efficiency also results from another mechanism. In the forming sections of modern crescent formers, the forming fabric tensions can be as high as 70 pounds per linear inch. If the forming roll is, for example, 50 inches in diameter, and the tension in the forming fabric 50 pli, the assisting pressure exerted against the sheet is about 2 psi (P, psi = T, pli/Radius, in or P = 50/25=2). This beneficial extra 2 psi is added to the existing vacuum at the "expensive" end of the vacuum curve to improve the economics of the process.

The installation of a soft covered roll **35** inside the forming fabric loop of the crescent former may further assist in urging the felt water into the vacuum forming roll and thus further enhance dewatering of the felt without the addition of more expensive vacuum power. This arrangement is illustrated in **Figures 21** and **22**. Note that assisting dewatering by fabric tension is on the order of about 2 psi; for example, in this invention if a soft covered roll (for uniform CD fit) exhibits a one inch wide nip, then by loading this roll to a relatively low level, say 20 pli, the additional urging pressure on the water in the felt is 10 times that of the fabric alone and will cost no more in terms of vacuum pressure or flow needed. In fact this additional loading might actually reduce the purging volume experienced at a given pressure drop.